UNIVERSITY OF GONDAR

INSTITUTE OF PUBLIC HEALTH

COLLEGE OF MEDICINE AND HEALTH SCIENCE

DEPARTMENT OF HEALTH SERVICE MANAGMENT

AND HEALTH ECONOMICS

CATASTROPHIC OUT-OF POCKET HEALTH EXPENDITURE AND ITS DETERMINANTS AMONG RURAL COMMUNITY IN MANDURA WOREDA, BENISHANGUL GUMUZ REGION, WESTERN ETHIOPIA 2017

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Acronyms & Abbreviations

AOR	Adjusted odd ratio
BGRS	Benishangul Gumuz Regional State
CBHI	Community Based Health Insurance
CTE	Catastrophic Expenditure
CI	Confidence Interval
COOPE	Catastrophic Out of pocket expenditure
GLM	Generalized linear model
HEWs	Health Extension Worker
hhs	Households
ITN	Insect side treated net
MLE	Maximum likelihood estimation
OOP	Out Of Pocket
OR	Odds Ratio
SHI	Social Health Insurance
Sd	Standard deviation
SSA	Sub Saharan Africa
USA	United States Of America
WHO	World Health Organization

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Abstract

Introduction: Out-of pocket payment is the principal payment mechanism in developing countries. Every year, 44 million households, or more than 150 million individuals, throughout the world face catastrophic expenditure, and about 25 million households or more than 100 million individuals are pushed into poverty due to out-of pocket spending. It pushes households to be deep seated in to poverty trap, aggravate inequity in health care and incur double burden opportunity cost on households when fall ill.

Objective: The aim of this study was to assess the extent of catastrophic out-of pocket health expenditure and its associated factors among rural households in Mandura Woreda, Benishangul Gumuz Regional State Western Ethiopia, in 2017.

Methods: Community based cross-sectional study design was used to assess catastrophic out of pocket health expenditure and associated factors among rural households using multistage sampling technique to select 486 households. Epi info version 7 was used for data entry and SPSS version 20 was used for analysis. The logit model was used to analyze the determinants of catastrophic out of pocket expenditure. The significance of the parameters was tested by P value and 95% CI. The model adequacy was checked by using hosmer-lemshow test (p=0.96).

Result: In this study the extent of catastrophic expenditure was 22.5% and sex of household head with AOR=0.466 at 95% CI (0.263, 0.826), working adults with AOR=2.39 at 95 % CI (1.216, 4.458), vulnerable member's with AOR=3.169 at 95% CI (1.007, 9.966) and chronic illnesses with AOR=0.239 at 95% CI (0.103, 0.553) in households were significant factors for catastrophic health expenditure.

Conclusion: The magnitude of catastrophic expenditure was 22.5**%** which is relatively high. Hence out of pocket health expenditure had catastrophic effect on some households. Therefore there is a need to develop financial risk protection systems to bring equity in health care service

Key words:- Catastrophic, Out-of Pocket, Health, Expenditure, Mandura, Woreda

1. Introduction

1.1 Statement of the problem

Out of pocket health payments are the principal payment methods for health care services in developing countries (1-4). Out of pocket expenditure (OOP) of health refers to the payments made by households at the point they receive health services (5). It is termed as catastrophic when the total heath expenditure of household's equals or exceeds 40% of the household's capacity to pay (1, 5-7). The household's capacity to pay is the non-subsistence effective income of the household. The household subsistence spending is the minimum requirement to maintain basic life in society(1, 5).

Globally Every year, 44 million households, or more than 150 million individuals, throughout the world face catastrophic expenditure and about 25 million households(hhs) or more than 100 million individuals are pushed into poverty due to out-of pocket payments (6). In low and middle income countries catastrophic OOP health expenditure pulverizes households income and labor supply(8). It disrupts the welfare of households, pushes households in to impoverishment and exacerbates poverty gap (2, 9, 10). It also hampers health care seeking behavior of households for fear of impoverishment(11).This makes households to forgo getting health services and suffer ill health(5). it creates socioeconomic disparity among households and threatens equity in accessing of health care services in areas of no risk sharing financing mechanisms.(12). Out of pocket payments compel households with no health insurance coverage, to cut spending on necessities, sell assets, borrow from wealthiest hhs and in extreme cases, it makes them to sink in to poverty trap (9).

In developed countries health systems, financial risk-pooling mechanisms have been developed over several decades. Yet, despite reasonably well developed financial risk protection mechanisms exist, some households in these countries still face catastrophic payments(11). similarly In many middle-income countries, although use of health services has expanded rapidly, the development of risk protection mechanisms has lagged behind(6).In sub-Saharan region removal of user fees made by hhs had been tried by introducing prepayment schemes increased utilization of health care services

for poor households rapidly, however, the incidence of catastrophic health expenditure among the poor did not fall(13).

In Ethiopia poor health care financing remains a major challenge for the health system. Health system is dominated by low government spending, strong reliance on out of pocket expenditure, inefficient and inequitable utilization of resources, poorly harmonized and unpredictable donor funding's leaving households vulnerable to impoverishment from catastrophic health expenditure(14). But much had been tried to protect households from financial risks by improving both nominal and percapita health expenditures, establishing and expanding community based health insurance (CBHI) schemes, subsidizing some specific services (fee-waiver and exemption) (14, 15).

However, despite some treatments subsidize specific diseases; it remains unclear whether the subsidies were providing reasonable financial protection to the targeted households. An attempt to determine the effect of disease-specific medical costs on household economic status and which illnesses have the most impact on household expenditure is limited. On the other side even if some services are waived for poorest of poor, accessing those households in the community is not adequately addressed, due to unclear criteria for selection(14) and the magnitude and main causes of catastrophic household expenditure have not been investigated in the region. Therefore this study tries to identify the burden of catastrophic expenditure and its determinants among rural households and provide baseline information for health planners about how to intervene towards minimizing catastrophic expenditure and protect households from financial risks.

1.2. Literature review

1.2.1. Extent of catastrophic expenditure

Globally,44 million households face catastrophic expenditure per year(6). A multi country analysis estimates of developed countries shows that the proportion of households facing CTE ranges in between 0.01% in France to 10.5% in Viet Nam. In Latin America it ranges from 3.21%---10.27%. in transitional countries CTE varies from 3.87% to 10.45%(11). In low income countries, the proportion of households facing CTE ranges from 6—28.38%(9, 16, 17).

National survey result in Colombia (2011) shows that 9.6 % households had catastrophic expenditure. Similarly cross-sectional household survey result in Mongolia (2016) found that CTE is 5.5% and 1.1% at 10% and 40% respectively (10). Cross-sectional household survey in china, India, Bangladesh revealed that the extent of catastrophic expenditure is 24.9%, 14.3 (18, 19), 23.4%(20) and 9% (21) respectively. Descriptive study in Iran (2011) and (2012) shows the proportion of households facing catastrophic health expenditure is 22.2% and 14.3 (22, 23). Another cross-sectional study in Nepal suggested that catastrophic expenditure is 13.8%(24)

Longitudinal study using a 10 year data in Cambodia (2016) suggested that catastrophic health expenditures among rural households decreased from 11.1% at beginning of the study to 10.6% at end. Similar study design in Korea shows that the level of catastrophic out of pocket expenditure is 3.5% mainly contributed by chronic illness(25)

Cross-sectional survey In Egypt, Tanzania and Kenya revealed that catastrophic OOP health payments accounts 6%,18% and (18-28.4%) (2) (17) (26) respectively. Cross-sectional survey using multivariate regression result in Burkina Faso shows that a large proportion of households (6–15%) in the study area had catastrophic health expenses even among those with modest health expenditure.

1.3.1. Determinants of catastrophic out of pocket expenditure

1.3.1.1. Socio economic determinants

Socio economic variables significantly impact the extent of catastrophic expenditure across the different regions of the world. In Colombia, Korea, China and Egypt, socio economic factors residency, employment status, size of working adults, educational status of hhs head, wealth index, saving practices and household with vulnerable members were significantly associated with catastrophic expenditure. On the other hand households without insurance protection faced higher catastrophic expenditure than insured once (2, 27-30).

Occurrence and intensity of financial catastrophe were inequitably high among poor. The incidence was higher in rural, extended, elderly, not insured and nuclear households, under the healthcare system. the lower the household's income quintile, the higher the probability of incurring in catastrophic healthcare spending (12). In Korea households with the lowest economic level in the community had significantly greater odd of encountering catastrophic expenditure with AOR= 16.375 at 95% CI=(16.322-16.429) (25). Households from the lowest income quintile were significantly more likely to be exposed to CTE (AOR=6.3, 95% CI=3-14.8) than the highest quintile.. Rural households are with greater catastrophic expenditure incurred compared to urban households (Odd Ratio =1.73 at 95% CI (1.38, 2.17). Households of richest group are less venerable to catastrophic spending than poorer households(2, 31).

Socio economic variables were potential determinants of catastrophic expenditure. Study findings in Egypt and Tanzania suggest that, Employment matters more than education in protecting households against catastrophic spending (2) and households working as unskilled daily laborers in the informal sector had greater risk of catastrophic expenditure (17). Study findings in Kenya among slum community suggest that households with number of working adults in the household has affected the probability of incurring catastrophic expenditure at OR=0.41, P value=0.03(26). Large households are less likely to encounter catastrophic health expenditure than small households

(OR=0.78; 95% CI = 0.72-0.84)(2).In eastern china the level of education of household heads was also negatively associated with catastrophic medical expenses(18).

1.3.1.2 Demographic factors

Demographic variables such as household size, age of households head, aged members in households, sex of hhs head, number of working adults in the households are significantly correlated with catastrophic OOP expenditure (12, 18, 30).Households with, nuclear families have less probability of incurring in catastrophic healthcare spending, than with extended families associated with elderly persons having risk of health issues. The sex of household head significantly determines catastrophic expenditure. Results of studies in developed countries for instance Korea proved that Households headed by females and middle-aged individuals (40–59 years) had significantly lower catastrophic health expenditure rates than those headed by males AOR= 0.667 at 95% CI (0.453, 0.982)(25).The level of catastrophic expenditure in a female-headed household of Egypt has less risk to incur catastrophic health expenditure compared to a male headed household (AOR=0.71; 95% CI= 0.52-0.96)(2). Unlike to this in China male headed households develop CTE less likely (19, 32). Similarly female gender particularly women had a contribution significantly in incurring catastrophic expenditure with AOR =0.60, at 95% CI= (0.34; 0.86)(17) than males.

As the size of the house hold increases, the probability of incurring catastrophic health expenditure also booms down. In Egypt study findings show that Large households are less likely to encounter catastrophic health expenditure than small households (OR=0.78; 95% CI = 0.72-0.84) for advantage of economies of scale of household consumption(2). In Tanzania size of household beyond five significantly increased the likelihood of experiencing catastrophic health expenditure(17).

Households with a number(s) of aged members had faced greater catastrophic expenditure. Households with elderly members are at significantly increased odds of experiencing catastrophic health expenditure with AOR= 2.77,at 95 % CI (1.238, 6.219)(25, 27, 33) and in China OR= 1.82 at 95% CI (1.53–2.16)(18, 19). households without young children has less financial catastrophe than households with young

children (AOR=1.36; 95% CI (1.11, 1.66)(2). In Colombia and Kenya households with working adults were less likely to brought catastrophic expenditure than those without working members (12, 26).

1.3.1.3. Disease related factors

Disease related factors are the major determinants of catastrophic expenditure. Scientific evidences from Colombia, Korea, China, and other countries revealed that use of inpatient service, number of household members with chronic illness, episode of illnesses and use of outpatient services, were significantly associated with catastrophic spending's(15, 30, 32, 34).

In Egypt and Tanzania Chronic disease is key factors for catastrophic expenditures. Households with at least one member with chronic illness cardiac case, diabetes mellitus, and bone illness face catastrophic payments (AOR=5.08; 95% CI (1.78,14.4)(2). Study finding in Burkina Faso suggested that Illness and treatment episodes among household adults significantly increased the probability of incurring catastrophic expenses. For instance an increase by one for average illness episodes among adults increased the probability of catastrophic expense by 1.5 to 1.7 times at the different cut-off values(16).

In Korea the study on chronic illnesses shows, chronic conditions of households with a member who suffered from cerebrovascular disease, diabetes, or chronic kidney disease were at a significantly higher risk of experiencing CTE(25). The odds of a household facing catastrophic expenditure if it contained individual(s) in chronic need of medical care were more than households that did not have a member in chronic care (17, 18, 23, 35). It is also associated with injuries, particularly those resulting from road traffic accidents(24).

1.3.1.4. Service related factors

Availability of any pre-payment mechanisms or health insurance schemes are the major determinants of catastrophic expenditure. According to study findings, Public health insurance protects households from catastrophic health expenditure (AOR = 0.20 at 95% CI (0.12-0.32)(2). In Korea Household whose medical expenses are subsidized by medical aid/government are significantly less suffered of catastrophic expenditures AOR=0.283,at 95% CI(0.160, 0.502) than those without (25). Households with heads that did not have any type of supplementary health insurance were 75.0% more likely to face catastrophic medical expenditure than those with heads that had some type of supplementary health insurance coverage(23).

The type and level of health facilities households were utilizing to relieve their health care needs impacts the level and strength of catastrophic spending. It is also evident that households who use higher health facilities are more likely to face catastrophic expenditure than those who use lower facilities(31). Frequent use of outpatient services and extended duration of impatient services had the high likelihood of facing catastrophic expenditure(23). According to study done in Tanzania, Getting treatment from Traditional healer had significant association with OOP spending with OR=1.47, (CI=1.23; 1.81). This visit to traditional healers significantly increased the likelihood of experiencing catastrophic health expenditure(17).Utilization of health care either from public or private hospital) emerged as significantly impacting the odds of catastrophic health expenditure(26). In Thailand households who voluntarily utilize private facilities for their health care need were more likely to face catastrophic expenditure.

Conceptual frame work

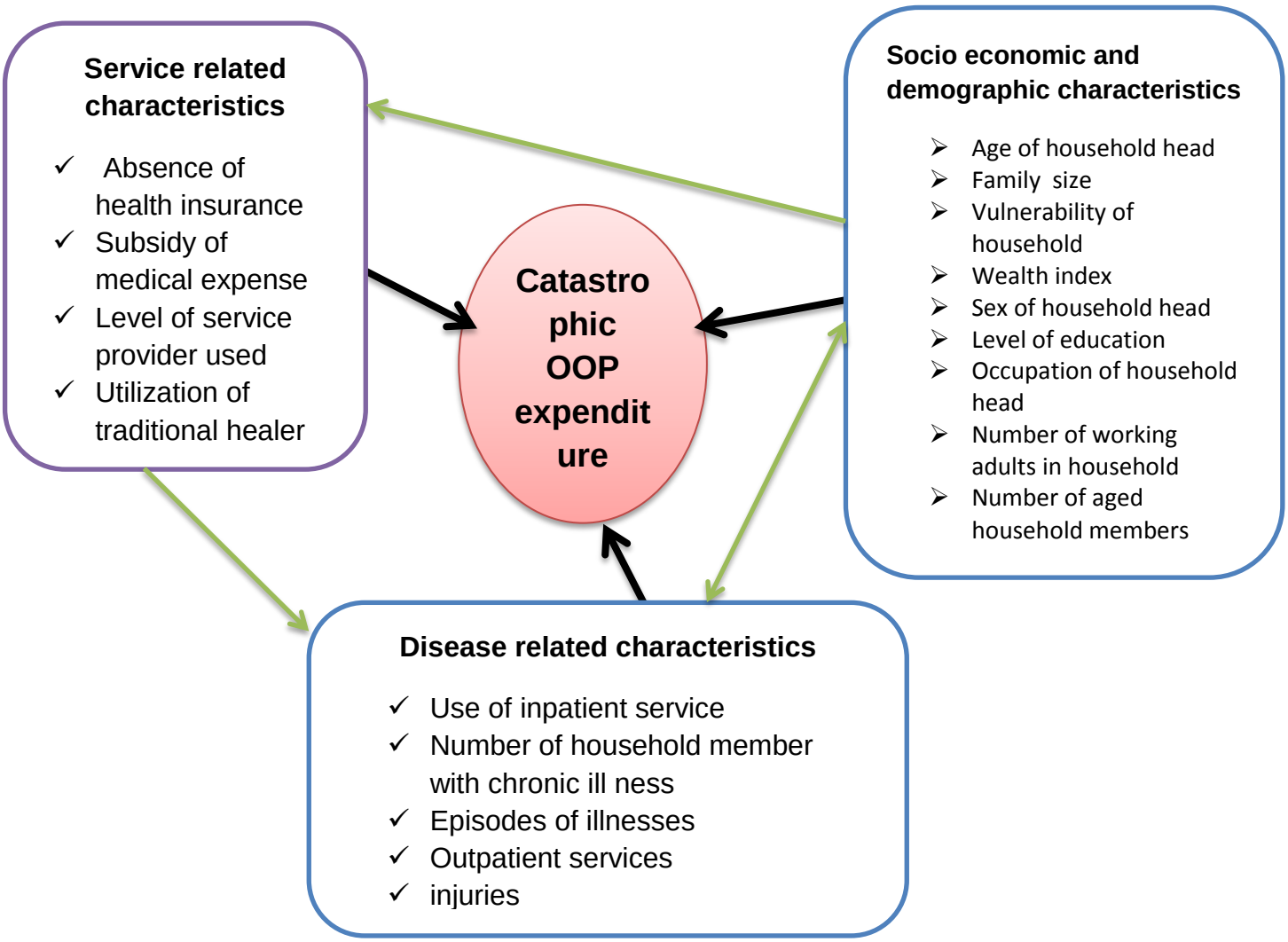

Figure 1 Conceptual frame work of socio demographic, service related and disease related factors adapted from literatures ((2, 16, 18, 27, 28, 34, 36)

1.3. Justification of the study

The health system in developing countries including Ethiopia is dominated by out of pocket payment systems which, pushes HHS in to impoverishment and at latter stage disrupts welfare of households. Catastrophic out of pocket expenditure had double burden of opportunity cost when fall ill. In Ethiopia OOP expenditure accounts 34% as a proportion of total expenditure and 79.9% as a proportion of private expenditure(36, 37). However little has been tried to protect households from financial catastrophes by deploying well advanced and accessible prepayment schemes, welfare and social security systems.

The basic issues initiating this study were,

Even though the study area was tropical and dominated by high frequency of tropical disease and the welfare of community was relatively deteriorated, there were no any pre-payment mechanisms (CBHI, social security, social insurance) systems protecting households from financial risks. The magnitude and determinant factors for catastrophic expenditure were not well understood and identified. The impoverishing effect of medical expense on household's welfare was not clearly understood. In addition to this there is no any study in this area as well as in the country concerning catastrophic expenditure and its impacts. Even though government subsidy of some specific health care services is allowed, identifying and accessing appropriate household's was not well addressed, for reason of lack of standardized criteria of selection.

Therefore this study was done to identify extent of catastrophic expenditure and its determinants. It also tries to propose financial risk protection systems, provide evidence on type of illness and service having the greatest devastating impact on welfare of households and to provide baseline data for policy makers and planners to take appropriate intervention towards reducing catastrophic spending.

2. Objectives

2.1. General objective

The general objective of this study was to assess the catastrophic out of pocket health expenditure and its determinants among rural households in Mandura Woreda, Benishangul Gumuz Regional State, Western Ethiopia.

2.2. Specific objectives

- To determine the extent of catastrophic out of pocket health expenditure among rural households of Mandura Woreda
- To identify factors associated with catastrophic out-of pocket health expenditure among rural households of Mandura Woreda.

3. Methods and Materials

3.1. Study area and period

This study was conducted in Mandura woreda in Benishangul Gumuz Regional State. It is located at 547 kilo meters from Addis Ababa in the North West. In this study area there are 20 administrative kebeles with two Urban and 18 rural. According to the 2017 Central Statistical Agency projection, the population of the woreda is estimated to be 55,371 that live in 12,304 households. Regarding health infrastructure there is one health center, 22 health posts, 4 private clinics and 4 drug stores. Each kebele had one health post comprising of one up to two health extension workers, one clinical nurse, and also at some health posts midwifery nurses also had been caring out primary and minor curative services. In general any preventive, promotive and curative services had been given by 7 health officers, 42 nurses, 9 midwives, and 10 laboratory and pharmacy technicians. In rural kebeles there are currently 46 health extension workers. The data for this study was collected from April 10-30/2017.

3.2. The Study Design

Community based cross-sectional study design was conducted.

3.3. Source and study population

Source population: The source populations were all households living in rural areas of Mandura Woreda

Study population: The study populations were all households in the selected kebeles of Mandura Woreda during the study period.

3.4. Inclusion and exclusion criteria

Inclusion criteria: Households in rural kebeles of Mandura Woreda living as self-reliant were included in the study

Exclusion criteria: All new couples who become as households for less than one month starting from the event of data collection In Mandura Woreda..

3.5. Sample size determination and sampling procedure

3.5.1 Sample size determination:

The sample size for this study was determined by using single population proportion estimation with 95% confidence level, 4% maximum tolerable error and 5% level of significance.

For prevalence objective, the study from Kenya in 2015 which reported the proportion of catastrophic OOP expenditure as 10.3% among households using community based cross-sectional study design was used (38).. The statistical result of sample size was calculated by using STATCALC application of single population proportion approach using the following formula.

$$\textbf{margin of error}(\mathbf{d}) = {}^{\mathbf{Z\alpha}}/_{\mathbf{2}}\text{*standard error}$$

$$\boldsymbol{d} = \frac{\boldsymbol{Z\alpha/2\sqrt{p(1-p)}}}{\boldsymbol{n}}$$

$$\mathbf{n} = (\mathbf{Z\alpha/2})^{\mathbf{2}}\mathbf{p}(\mathbf{1}-\mathbf{p})/\mathbf{d}^{\mathbf{2}}$$

By using STATCALC application of Epinfo version 7.2.1 with 4% margin of error and design effect of 2 yields sample size of 442. Finally adding 10% contingency the sample size will be 486.

For factor study Fleiss scheme of STATCALC was used for significant variables of wealth index and chronic illness(2). The statistical assumptions 4% margin of error, and design effect of 2 and 10% non-response rate were used and the result is presented in the following table.

Table 1 sample size calculation for factors of specific objectives

variable	proportion	Sample size
Wealth index		61
Middle	0.80	
Richest(un exposed)	0.21	
Chronic illness		53
Liver illness(un exposed)	0.83	
Brain illness	0.17	

Therefore it is better to use sample size computed for prevalence objective since it is the largest of both factors

3.5.2 Sampling procedure

Multi stage sampling technique was used, because, the households are living in a very scattered and wide geographical area in their own specific tribes. There were 18 rural kebeles in the district and the procedure for selection of study subjects involved the following procedure.

First out of 18 rural kebeles 6 kebeles were selected randomly, and then 486 households were proportionally allocated to the 6 randomly chosen kebeles having 3501 households. The most recent list of households was received from Woreda health office that was collected for ITN distribution. Systematic random sampling was used to select each household. Since the households for each kebele were allocated proportionally the sampling fraction is the same that is seven. Then the first household was selected by randomly drawing the numbers from one to seven using lottery method. Finally every household with the interval of drawn number was observed for data collection from each kebele until the required sample size was fulfilled. When the chosen household was not eligible the next neighbor was asked. Finally the head of the household and house wife's particularly for food expenditure were contacted for interview because female spouses are assumed to have more information on household expenses than male spouses.

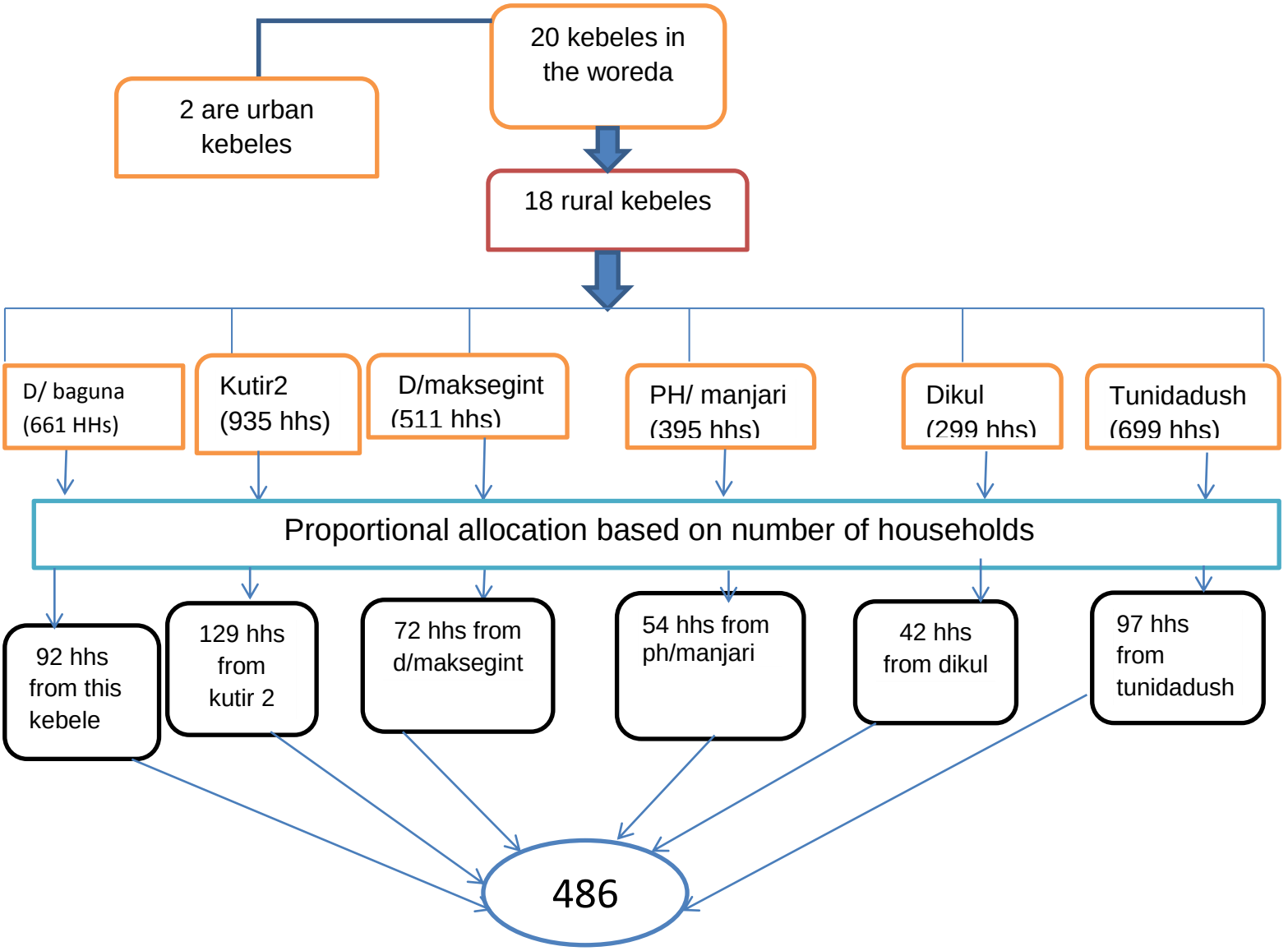

Figure 2 Diagrammatic representation of sampling procedure

3.6. Variables of the study

3.6.1. Dependent variable: Catastrophic out-of pocket health expenditure

3.6.2. Independent variables

❖ **Socio economic & demographic variables**

- Age of household head
- family size
- Vulnerability of household
- Wealth index
- Sex of household head
- Educational status of mother
- Occupation of household head
- Number of working adults in households
- Number elderly members in the households

❖ **Service related variables**

- Health insurance systems
- Subsidy of medical expense
- Level of health service provider used
- Utilization of traditional healers

❖ **Disease related variables**

- Use of inpatient service
- Number of household members with chronic ill ness
- Episodes of illnesses
- Outpatient services
- injuries

3.7 Operational definitions

Health expenditure: - Payment made for consultation, treatment, drugs, tests and x-ray, for inpatient services, on other medical equipment's at point of service delivery and family care and remedial actions

Food expenditure: -The amount spent on all foodstuffs by the household plus the value of family's own food production consumed within the household. However, it excludes expenditure on alcoholic beverages, tobacco, and food consumption outside the home (e.g. hotel and restaurants), because these are not necessity consuptions

Chronic illness: Diseases that persists for a minimum of 3 months in the last 12 month before the survey and cannot be prevented by vaccines or cured by medication, nor will it just disappears.

Episode of illness:- a specific illness that repeats its occurrence on a household but can vary among individuals

Vulnerable household: a house hold with children < 5 years and elders above 65 years

Traditional healers: Refers to the provision of traditional medicine to patients outside of health facilities. It includes the use of herbs for addressing physical and mental Illness.

Equivalent household size: - The size of household adjusted by a constant household scale multiplier.

Total household expenditure: consists of all monthly payments on all goods and services

3.8. Data collection procedure

Structured questionnaire was formulated in English and translated to Amharic and also retranslated back to English to check language consistency. Households were selected from each of the 6 kebeles randomly. Face to face interview using a close ended questionnaire that included family composition, demographic characteristics, wealth index, household total expenditure, food expenditure, household OOP payments for health, including direct health expenditures (diagnosis and treatment), and health service needs and usage.

Based on this tool we recorded morbidities that had reportedly occurred in the last 30 days before the survey and any chronic conditions that had reportedly continued for more than 3 months in the last 12 months before the survey. the out-of-pocket expenditure on health of each study household over the 30 days before the survey was estimated by asking the respondents how much their households had spent, separately, on consultation or diagnosis fees, drugs, other medical supplies and hospitalization costs. The interviewers also posed separate questions on the costs of traditional healers, and home remedies. Similarly all the variables related to expenditure were converted to a monthly figure. For survey data provided in other units (i.e. for the recall period of 7 days, 2 weeks) were adjusted to monthly figures.

On the other hand household's food expenditure data was gathered as the amount spent on all foodstuffs by the household plus the value of family's own home made food consumed within the household. However, it excludes expenditure on alcoholic beverages, tobacco, and food consumption outside the home (e.g. hotel and restaurants)(5). For the purpose of recalling the food expenditure was gathered using a one day recall period and adjusted for one month by a multiplier of 30. Expenditure on clothes will use a 6 month recall period. This all information was collected house to house among randomly chosen households by data collectors in rural areas of Mandura woreda from April 10-30/2017

3.8.1. Data quality assurance

Before data collection the questionnaire was pre tested to check for validity using 5% of the study units in Gigda selase kebele which is outside of the sampled kebeles. The data was collected by 6 clinical nurses and two supervisors, one clinical nurse and one laboratory technologist as immediate supervisors one for 3 kebeles who were members of the community social groups. All the data collectors and supervisors took a one day intensive training on how to collect relevant data. All collected data was checked for completeness, accuracy and consistency by the supervisors and principal investigator every day. Anything, which is unclear and ambiguous for data collectors, were corrected and explained by supervisors on the next day. On daily bases 10% of collected samples were rechecked by the supervisor's whether the interviewers have recorded consistently

3.9 Empirical specification of catastrophic out-of pocket expenditure

Catastrophic expenditure occurs when households out of pocket spending exceeds beyond a certain threshold. The threshold used for this particular study is 40% of capacity to pay using a method developed by KE xu 2005 ((1, 5, 6, 26)). By using this approach, catastrophic health spending is incurred when households health spending is beyond 40% of ability to pay. Finally health expenditure is categorized as binary variable, catastrophic or not for cutoff point above 40% and below using the following steps of Ke Xu methods developed by World Health Organization as follow

Given Variables as:

FESh = Food expenditure share for household

FEh = Food expenditure of household

TEh = Total expenditure of household

HES = Household equivalent size

HS = Household size

β = 0.56 is the household scale multiplier. From literature 0.56 was used (3)

EFEh = Equivalent food expenditure of household.

PL = poverty line

SEh = Subsistence expenditure of household

Ctpayh = Household's capacity to pay

OOP ratio = Ratio of out of pocket health spending to total spending or income

CHE = Catastrophic health expenditure using a 40% threshold

1. Generate the food expenditure share of each household by dividing household's food expenditure by its total expenditure: FESh= FEh/TEh
2. Generate the equivalent household size (HES) for each household as:

   HES =HSβ where HS is the household size. For This study, the household scale multiplier β of 0.56 was used
3. Divide each household food expenditure (FEh) by the equivalent household size to get equivalent food expenditure (EFEh): EFEH= FEh/EHS
4. Identify the equivalent food expenditure share of each HHS with in the 45th and 55th percentile range. Calculate the average food expenditure share in this range of percentiles to get subsistence expenditure percapita (poverty line)
5. Compute subsistence expenditure for each household (SEh): SEh=PL*HES
6. Compute the household capacity to pay:

   Ctpayh = TEh−SEh if SEh < FEh

   = TEh−FEh if SEh > FEh
7. Generate the health expenditure share of each household capacity to pay by dividing OOP health spending by capacity to pay:

   OOPratio= OOP spending/ctpayh

8. Determine catastrophic health expenditure (CHE):

CHE= [1 if OOPratio>40% or 0.4 other wise 0].

To develop binary choice model using the above steps household size, food expenditure, total expenditure, and health expenditure were used.

3.10. Data processing and analysis

The collected data were entered in to Epi Info version 7 and finally exported to SPSS ver. 20, then the exported data were cleaned, coded, merged and categorized for some variables and principal component analysis was made to categorize wealth index in to quintiles and finally analyzed by SPSS ver. 20. Frequencies and cross-tabulation was used to summarize descriptive statistics of the data.

Bivariate logit model was employed to see the association of each variable with dependent variables. Finally, independent variables with p-value less than 0.2 in the bivariate logistic regression was entered in to multivariable analysis to control the effect of confounding and for further analysis. Variables having p-value of less than 5% were variables which has significant association with outcome variable.

The maximum likelihood estimation (MLE) method estimates the parameters for the variables entered in to the equation.. The predicting power of each variables to the outcome variable was seen by percent correctly predicted and it is 77%. The adequacy of the model with significant variables in multivariate analysis was checked by hosmer-lemshow test which is 0.968 depicting adequate model.

4. Ethical consideration

Ethical clearance was obtained from Institute of public health ethical/scientific review boards of University of Gondar. Similarly official permission was received from Meteke zonal health department and Mandura woreda health office. After approval of ethical issues based on the designed self-administered structured questionnaire, the data collection procedure starts to proceed after the data collectors were well trained about how to maintain ethical aspects of the research process.

During the process of data collection the purpose of the research and the procedure was briefly described to each households and verbal consent was obtained from the head of the household. For the sake of respecting the social, cultural, and historical context of the society the data collectors were recruited from the same community. After informing the purpose of the study those households who are refusing the consent were jumped and proceed to the next household.

5. Result

5.1 Socio demographic and economic characteristics

Out of 486 study participants 479 had participated in the study with response rate of 98.6%. The study revealed that 84.8% of respondents were headed by male gender. (84.36%) of household heads were married/live together with their spouses. More than half (62.81%) were Gumuz ethnic groups, (87.5%) were illiterate and 50.5% were orthodox Christians, 89.6% of hhs had at least one under five children, (54.3%) were above 35 years, (96.2%) were farmers. In addition the study revealed that (61%) of vulnerable members in the household were under five year children, 51.1%) had family size greater than five, (89.6%) had one and more than one working adults,(35.3%) of households fall under 2nd quintile. The average number of under-five children per – household was 1.3 ± 1.02. Among the study households the average number of persons per household is 5.7 ± 1.99.

Table 2 Socio-economic and demographic characteristics of households in mandura woreda in 2017

No	variable	frequency	Percentages (%)
1	**Sex of household head**		
	male	406	84.8
	female	73	15.2
2	**Marital status of household head**		
	Single	19	4
	married	297	62
	divorced	158	33
	widowed	5	1
3	**Religion**		
	orthodox	242	50.52
	Muslim	38	7.93
	Others	199	41.55
4	**Educational status of mother**		
	illiterate	419	87.5
	literate	60	12.5
5	**Under five children in household**		
	No	50	10.4
	One & More than one	429	89.6
6	**Elder >65 years) living in household**		
	No elders	426	88.9
	With elders	53	11.1
7	**Ethnic group of household**		
	Gumuz	297	62
	Agew and others	182	38
8	**Working adults in household**		
	No	50	10.4
	One and more than one	429	89.6
9	**Age of household head**		
	<35 years	219	45.7
	>35 years	260	54.3
10	**Occupation of household head**		
	Farmer	461	96.2
	Others	18	3.8
11	**Vulnerable members in household**		
	Both elders and children	48	10
	Children only	292	61

	Elders only	15	3.1
	No vulnerable	124	25.9
12	**Family size**		
	Less than or equal to five	234	48.9
	More than 5	245	51.1
13	**Wealth index**		
	1st quintile	24	5
	2nd quintile	169	35.3
	3rd quintile	93	19.4
	4th quintile	97	20.3
	5th quintile	96	20

5.2 Disease related characteristics of households in Mandura woreda

Almost five percent (5.4%) of study households had a member with chronic illness. Households with any member facing an illness in the last month before the survey accounted for (30.1%) and households encountering with any illnesses up to twice accounted for (95.8%).

Table 3 Disease related characteristics of respondents in Mandura woreda, Benshangul Gumuz Region, Ethiopia, 2017

No	Variable	Frequency	Percentages (%)
1	**Household's with chronic illnesses**		
	No	453	94.6
	Yes	26	5.4
2	**Households with any illnesses**		
	No	334	69.9
	Yes	144	30.1
3	**Episode of illness**		
	Up to twice	138	95.8
	More than twice	6	4.2

5.3 Service related attributes of households in Mandura woreda

Out of 144 households whose members got any type of illness or injuries (98.6%) had got medical treatment or counseling. Households who got treatment from public facility account for (75.2%). The majority (88.9%) of study households with any type of sickness or injury got outpatient treatment. Almost all ill members of households (96.6%) have no any type of subsidy as their payment mechanism. More than half 87(60.4%) of households with sick patients had duration of treatment/consultation shorter than six days.

Table 4 Health service related characteristics of households in mandura woreda Benishangul Gumuz Regional state, Ethiopia 2017.

No	Variable	Frequency	Percentages (%)
1	**Had sick got medical check up**		
	No	2	1.4
	Yes	142	98.6
2	**Place of treatment**		
	Pubic facility	108	75.2
	Private facility	36	24.8
3	**Type of treatment**		
	outpatient	128	88.9
	Inpatient	16	11.1
4	**Member of any free service**		
	Poor card	2	2.4
	No	142	96.6
5	**Duration of treatment**		
	<=5 days	87	60.4
	>5 days	57	39.6

5.4 Expenditure and capacity to pay of respondents

The average monthly expenditure of households in the study area 1796 ± 927.9 Birr of total expenditure, 1476.09 ± 511.8) Birr of food expenditure and 177 ± 628 Birr of health expenditures per household. The mean of subsistence expenditure that the households expensed to maintain basic life was 1488 ± 308.3) Birr per household and the mean of their abilities to pay for health care services was also 429.9 ± 15 birr

5.5 Incidence of catastrophic out of pocket health expenditure in Mandura woreda

The study revealed that 108 (22.5%) at 95% CI (19, 26.3) of the respondents encountered catastrophic out-of pocket health expenditure.

5.6 Determinant of catastrophic out of pocket health expenditure in Mandura woreda

In the bivariate regression analysis sex of household head, number of working adults in household, number of elders, presence of vulnerable members, having household member with chronic illness and ethnicity were all significantly associated with catastrophic out of pocket expenditure independently. However in multivariate analysis only sex of household head , number of working adults, vulnerable members in households and presence of members with chronic illnesses were significantly associated with catastrophic out of pocket expenditure in the study area.

The study indicated that male headed households were 53.4% less likely to encounter catastrophic out of pocket health expenditure than female headed households with AOR=0.466 at 95% CI= [0.26, 0.82]).

Households with no member of working adults were 2.33 times more likely to be exposed to the catastrophic out of pocket health expenditure when compared with households having at least one working adults AOR=2.33 at 95% CI=[1.216, 4.458]. This study comes up with the findings that households with any number of elders (> 65 years) were 3.169 times more likely to encounter catastrophic out-of pocket health expenditure when compared with households who did not have any number of vulnerable groups with AOR=3.169 at 95% and CI= [1.007, 9.966]).

Households without members having any type of chronic illness were 76.1 % less likely to encounter catastrophic out-of pocket health expenditure than those with members having chronic illnesses at AOR=0.239 at 95% level of confidence and CI= [0.103, 0.553]).

Table 3 Factors associated with catastrophic out of pocket health expenditure in Mandura woreda, Benishangul Gumuz Region, Ethiopia 2017**.**

Variable	Frequency of catastrophic expenditure		COR With95 % CI	AOR With 95% CI	P Value
	yes	no			
Sex of household head					
Male	83	323	0.49 (0.29, 0.85)*	0.466 (.26 .82)*	.009
Female	25	48	1.00	1.00	
Number of working adults					
No working adult	20	30	2.583 (0.21, 0.71)*	2.329(1.216 4.458)*	.011
>=1working adult	88	341	1.00	1.00	
Vulnerable members					
Children & elder	7	41	.585 (.237, 1.448)	.610(.239 1.556)	
Children only	66	226	1.001 (.606, 1.655)	1.002 (.591 1.698)	
Elder only (3)	7	8	3.000 (1.00, 8.997)*	3.169(1.007 9.966)*	.047
No vulnerable	28	96	1.00	1.00	
Presence of chronic Illness					
No	95	358	0.265(0.119, 0.591)*	.239(.103 .553)*	.001
yes	13	13	1.00	1.00	
No. elders in hhs					
No elder	91	335	0.575(0.309, 1.07)*	1.83(0.963, 3.498)	
One or more than one	16	35	1.00	1.00	
Ethnicity of hh head					
Gumuz	73	224	1.369(.870 2.154)*	1.302 (.808 2.099)	
Agew and others	35	147	1.00	1.00	

6. Discussion

Based on this study the extent of catastrophic out of pocket health expenditure in Manudura woreda is 22.5%. This study finding is nearly similar with studies conducted in Iran and India with prevalence of 22.2% and 23.4% respectively (20, 39). This similarity may be due to use of similar sampling method, threshold, weaker prepayment system and rural areas as study area. However this finding is lower than studies done in China (24.79%), and in Kenya (28.3 %)((18, 26)). These discrepancies might be due to differences in thresholds, socioeconomic status and dissimilarity of statistical methods which is sample size. Additionally in this study area even though some tropical diseases were rampant the practice of early treatment immediately after onset of illness is not customary and wait until the illness will become relived or severe due to lack of health care seeking behavior. This may under estimate the extent of catastrophes

On the other way the findings of the study was higher than many studies in different parts of the world. For instance it is higher than studies done in Egypt (6%) prevalence, in Colombia (9.6%), in Iran (17.7 %), in Nepal (13.8 %) and (18%) in Tanzania((2, 12, 16, 17, 19, 23, 24)) The possible reason for this difference might be due to variability in key preconditions for catastrophic health expenditure as heavy reliance on health services requiring out-of pocket payments, relatively low capacity to pay and lack of prepayment or health insurance options(14). The health system of this study area is totally dominated by out-of pocket spending and no any prepayment systems at all. On the other way even if government subsidy called fee waiver mechanism for poorest of poor exist, such households were not clearly identified due to unclear and un standardized criteria for selection. The other suggestion is since households were rural dwellers and led only hand to mouse living standards due to lack of modern farming systems and hence economically deteriorated. These results in very little capacity to pay which became catastrophic even few had been spent for health care. This all situations may boom the magnitude of catastrophic expenditure in this study.

The sex of the household head is one of the determinants for catastrophic out of pocket expenditure. According to the findings of this study male head households are less likely to develop catastrophic expenditure than female headed households with AOR=0.46 at 95 % CI (.26, .81). This study finding is consistent with study conducted in in China and India (19, 20, 32). This could be resulted from use the same statistical method which was logistic regression studied crossectionally and proximity of economic status. In addition to this household members headed by male may have better educational level and hence employment due to decision power of head and relatively better economy. This rises coping of health care costs and reduce households from exposure to catastrophes.

However Unlike to our findings the finding of studies in Egypt and Korea states that female headed households were less likely to develop catastrophic expenditure than male headed households ((2, 20, 25)). The possible reason may be since most of female headed households do not give birth as more as male headed households the size of the household having a direct association with catastrophic expenditure is relatively small from evidences of small households are less likely to incur catastrophic health expenditure when compared to larger households.

It is customary to expect that households having productive adults were economically better than those with none of its members having no any working adults and afford the cost of any medical expenditure. the finding of this study also supports this idea and come up with the outcome as households without member of working adults were 2.33 times more likely to be exposed to the odd of catastrophic out of pocket expenditure when compared with households having at least one working adults AOR=2.56(95% CI [1.37, 4.9]. This finding is similar with the findings of the study from Colombian households and Kenyan slum communities ((12, 26)) for the fact that wealthier households emanating from contribution of working adults had capacity to pay for any medical expenses when viewed relatively.

Another major determinant factor for catastrophic expenditure was the presence of vulnerable individuals in households. The findings from this study revealed that households with any number of elders (> 65 years) are 3.24 times more likely to

encounter catastrophic health expenditure when compared with households who did not have any number of vulnerable groups with AOR=3.169 at 95% CI(1.007, 9.966). This study finding is consistent with the findings of studies conducted in Colombia, Korea, Cambodia ,China(2012) , China (2014) and Iran (12, 18, 19, 25, 34, 35). This similarity among the findings of different studies might be due to high health care seeking by elderly members for reason of relatively high health risk as age increases.

Presence of a member with chronic illnesses in households is significantly associated with catastrophic expenditure. the other finding of this study was that households without members having any type of chronic illnesses were less likely to develop the odds of catastrophic out of pocket health expenditure than those with members having chronic illness at AOR=0.239 at 95% CI= [(0.103, 0.553]). Similar study findings from Egypt, Tanzania, Cambodia, China (2012) China (2013), Korea, Iran, India (2, 17-20, 23, 25, 35) consistently supports this finding. Longer duration of treatment, high frequency of treatment, highier medical costs associated with chronic illnesses and endless need of medical care may drive this expenditure.

7. Limitation of the study

The potential limitation of this study might be presence of certain recall biases in estimation of food and health expenditures by their requested items and seasonal variation of illnesses in this tropical area may cause high variability in magnitude of catastrophic out-of pocket expenditure from season to season. The crossectional data used may either over or under estimate the expenditure. It might be important if longitudinal nature of data is available for exact estimation.

8. Conclusion

The result of this study revealed that the proportion of households facing catastrophic out of pocket health expenditure is relatively high in this study area and hence out of pocket health expenditure has strong catastrophic effect on rural household's welfare. In addition to this catastrophic out of pocket expenditure was significantly associated with sex of household head, working adults in households, presence of vulnerable members and chronic illnesses in households.

9. Recommendations

The following recommendations for different level stakeholders was suggested based on the findings of this study

For Ministry of Health

- need to target at reducing incidence of catastrophic expenditure by promoting vertical equity in health care service provision and payment
- Focus towards establishing and expanding risk sharing and pooling mechanisms to protect elders, households having chronic illnesses and none working adults
- Need to establish country affordable strategies like Medicare for elders

For regional Zonal and Woreda health offices

- Shall increase reliance on some form of fee waiver mechanisms among some high health risk households, or those with no working adults, having a member with chronic illness and for elderly individuals.

For health professionals and researchers

- Focus on primordial prevention to minimize chronic diseases
- Conduct further research on catastrophic expenditure and its impoverishing effect using longitudinal data.

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Annexes

Annex I Information sheet and consent form

Dear respondent, Hello, My name is_____. I am planning to conduct do a research in University of Gondar. I am interested in learning more about the magnitude and factors influencing the extent of catastrophic expenditure. This questionnaire is designed for a research work which will be approved by University of Gondar, college of medicine and health science, institute of public health, Department of health economics and health service management to be conducted in partial fulfillment of master's degree in public health. I hope you will help me by answering these questions. None of your answers will be made available to anyone .you are not expected to write your name on the questionnaire tool .All the information you give us will be kept private. Anyone who will not be willing to participate in the study will have the right to discontinue at any time in the process. Confidentiality and privacy will be maintained by ensuring the respondents answering the questions on a separate place where no one can see them. Therefore, we really need your honest and genuine response to questions prepared is highly appreciated and helpful to attain the objective of the study. The results of the study will hopefully serve as an important input for policy and intervention programs that aim at addressing the devastating effect of catastrophic expenditure

I would like to gratitude you in advance for taking your time to answer questions.

Would you be willing to participate in the study?

If yes, proceed to the next page

If no, please stop here

Thank you

Annex II English version questionnaires

Socio economic and demographic characteristics

S.no	question	response
1.	Gender of household head	a) male b) female
2.	Marital status of household head	a) single/never married b) married/live together c) divorced d) widowed
3	Ethnic group	a) Amhara b) Gumuz c) Agew d) Shinasha e) Others specify
5	Educational status of mother if composite family	a) illiterate b) read and write only c) primary school d) secondary e) diploma f) others specify
6	Family size	……
7	Number of children(< 5 yrs) in households	……
8	Number of working adults15-49) in hhs	……..
9	Number of elderly (>65 yrs) persons In households	……
10	Age of household head in years	……..
11	Occupation of household head	1) farmer 2) small scale merchant 3) handicraft

		4) house wife 5) daily laborers 6) others
12	Vulnerable members in the household	1) children and elders 2) elderly adults only 3) children only 4) no children and no elders
13	Employment status household head	a) self employed b) un employed(seeking job) c) civil servant d) others
14	How does your family perceive health care seeking	a) high b) medium c) poor d) other specify
15	Is there a member with disability	a) yes b) No
16	If yes what type of disability	a) Physical disability b) Functional disability c) Psychiatric disorders d) none

This questionaries' is reproduced from catastrophic expenditure study of rural households in Vietnam and modified according to the context of this study area
Socio economic condition

Food expenditure

1. Please estimate an appropriate cost of the following food items for yesterday

no	Food Item	Daily cost	Monthly cost
1	meat		
2	fish		
3	Borde (local drink)		
4	Porridge		
5	egg		
6	vegetables		
7	Injera		
8			
9			
10			
11			
12			
13			
total			

2. Was that total money spent for yesterday similar, more or less than other days during last month?

   A) Same
   B) More
   C) Less

3. If it was different, on average how much money do you spent on food every day?
   - Average expenditure per a day =……..birr
4. During last month what were other expenditures rather than food in your family?
   a) Valuable items more than thousands in birr----
   b) Health care in birr-----
   c) Fertilizer in birr……
   d) Education in birr…….
   e) Wedding, funeral
   f) Others specify
5. Are you currently in debt?
   a) Yes
   b) No
6. If yes how much is the debt? In birr----------

7. If yes for what reasons?
    a) For buying goods
    b) For health care
    c) For education
    d) For buying fertilizer, trading
    e) For wedding, funeral
    f) For daily expenditure
    g) For others (specify)
8. How far is it from your home to the nearest health center?
    Distance in kilometer=……

Health care utilization and expenditure

9. Is there any person with at least one chronic illness in your household?
    a) Yes
    b) No
10. If yes how money persons……..
11. Thinking one year back how many of your household members have been ill/ injured and therefore in need of health care……

12. In the last 4 weeks, is there any one in your family get any kind of sickness, accident or injury
    a) Yes
    b) No
13. If yes please specify each illness episode of each person

	Number of persons	No 1	N02	No3	No4	No5	No6
27	Signs, symptoms/conditions						
	cough						
	fever						
	Headache, vertigo, dizziness						
	Stomach ache						
	Bone and joint pain						
	accident injury						
	hypertension						
	Heart disease						
	Others specify						
28	Has any sick person get any medical checkup since when he/she got sick						
	yes						

	no						
29	Which was the first provider where the person sought medical helps						
	Self-treatment						
	Traditional healer						
	Private clinic						
	Health post						
	District hospital						
	General hospital						
	Others (specify)						

30). Do you have insurance

a) Yes

b) No

Question and categories	No of HH members				
	1	2	3	4	5
1) Where any of your family members ill/injured during the previous month? Yes No if yes proceed to question 2 If ill more than 2 times fill in the next column					
2) What kind of illness/injury do persons suffer from a) Cough b) Fever c) Headache d) Difficulty in breathing e) Abdominal pain f) Pain in bone and joint g) Injury/accident h) Hypertension i) Heart disease j) Intestinal disorder k) Others specify					
3) How long has the illness lasted (days) a) Has been confined to bed b) Missed school/work c) Can work/got to school Total days =a+b+c=……					

4) Did they consult any health provider or use any medicine

a) Yes

b) No

5) If yes how long from onset of illness did you/they consult health providers (in days)
   Number of days=……..

6) What kind of health provider did they/you consult until recovered by consult order)?
   a) Private health worker
   b) Drug seller
   c) Health post
   d) Health center
   e) Primary hospital
   f) General hospital
   g) Referral hospital
   h) Traditional healer
   i) Self-treatment
7) Why did your family choose the first consult?
   a) Near by the house
   b) good quality
   c) cheap
   d) acquainted
   e) serious illness
   f) others
8) How long you/they have stay in the hospital? (By day)
   a) 1-3 days
   b) 4-7 days
   c) 8-12 days
   d) 13-17 days
   e) More than 18 days
9) Have you/ they been treated inpatient/outpatient?

1) Inpatient if 1 go to 11
2) Outpatient if 2 go to 12

11). How much in total did you/they had paid during hospital stay?(in birr)

   a) For consultation…….
   b) Drug……
   c) Test and x-ray……
   d) Bed days……..
   e) Travel (including family care)……..
   f) Other specify
      ……
      Total ……

12). How much did you/they have paid for outpatient treatment(in birr) for
a) Consultation……..
b) Drug…….
c) Test and x-ray…….

d) Bed days……
e) Travel including family care……..
f) Others: family care……
gift…….
……
Total payment=……..

13) how much did you/they had paid for
a) Private clinic……..
b) Drug seller……
c) Health post……..
d) Health center……..
e) Primary hospital…….
f) General hospital……
g) Traditional healers……
h) Self-treatment……
Total cost= 11+12=……..
14) was the illness person a member of
a) health insurance
b) exemption without health insurance
c) poor card without (a and b)
d) no
15) were you/they exempted from paying user fee?
Yes
No
If so how large was it in birr ----------
16) how much has been spent for
a) general health examination------- birr b) family planning ----birr
c) rehabilitation---------- birr c) total----------birr

17) Total health expenditure for household per a month (direct payment from household) in birr
1) for each person total = 11+12+16=……
2) for whole hhs
18) total health expenditure for household per a month(including exempted) (in birr)
1) for each person: total 15+17=-----
2) for whole hhs------
19). please estimate your appropriate spending on the following daily food items for yesterday? (Only pay by cash)

a) Meat b) Fish c) Porridges d) Vegetables e) Injera

e) Others ……

Total=----------

20). during the last month what were expenditures other than food in your family

a). Valuable items -----birr b). Health care -------birr c). Education-------birr
d) Weeding-------birr e) funerals----------birr

e) others in detail
……

Total in birr----------

21) Total expenditure of last month total= (question 19*30 days) plus question 20.…

Annex 3.4 wealth index

PART-4: INCOME AND WEALTH INDEX QUESTIONS			
400	Ask the household if they have any of the following livestock assets	Do you have these animals? 1=Yes 2=No	How many of these animals do this household currently own?
	1. Plough oxen 2. Fattened ox 3. cows 4. heifer 5. bull 6. Calf 7. Goats 8. Sheep 9. Donkey 10. Mule 11. Horse 12. Chicken 13. Beehive 14. Others specify)		
401	Ask the household if they have any of	1=Yes	If yes how much the amount in

	the following crop productions produced in the previous last years	2=No	quintals
	Teff Maize Sorghum Chickpea Lentil Soya bean Carrot Head Cabbage Mango Orange Papaya Paper corn pumpkin coffee chat Others		

402	Does your household have?			How much the number
	1) Functioning radio/tape	1. Yes	2. No	
	2) Modern beds	1. Yes	2. No	
	3) Cotton/sponge/spring mattress?	1. Yes	2. No	
	4) Mobile/cell-phone/wireless	1. Yes	2. No	
	5)Water pump	1. Yes	2. No	
	6)Modern stoves	1. Yes	2. No	
	7)Other (specify)			

403	What kind of latrine does your family have?	1.None 2. Traditional latrine 3. VIP 4. Other (specify)_____	
404	What is the type of roof of the house?	1. Corrugated sheet 2. Thatch roof 3. Other (specify)_____	
405	How many rooms are used by this household for sleeping only?	Number of rooms ------	
406	Do you have kitchen	1. Yes 2. No	
407	Do you have separate rooms for cattle?	1. Yes 2. No	
408	What is the wall of your residence house made of?	1. Wooden structure 2. Mud 3. Other (specify)_____	
409	What is the total farm size holding of the household in Hectares?	Size in hectares ----------	
410	the amount of money deposited or saved in bank or other financial sector	In birr----------	

Annex III Amaharic version consent form and information sheet

በጎንደር ዩንቨርሲቲ በህብረተሰብ ጤና ሳይንስ በጤና ሃብት ምጣኔ ለድህረ ምረቃ ምርምር በቤንሻንጉል ጉሙዘ ክልል በማንዱራ ወረዳ በህክምና ወጪ ምክኒያት ኑሯቸው የሚዘባባቸው ቤተሰቦችን ለመለየትና ችግሩን የሚያመጡ ኢጋላጮችን ለመለየት የተዘጋጀ መጠይቅ፡፡

የአጥኝው ስም ----------

የመረጃ ሰብሳቢው ስም----------

የቀበሌው ስም----------

መረጃው የተሰበሰበበት ቀንና ዓ/ም -------/ ----------/----------/----------

የመረጃ ሰብሳቢው ፊርማ ----------ቀን --------/ --------/ --------/

የተቆጣጣሪው ፊርማ ----------ቀን --------/ --------/ --------/

ከፍተኛ የህክምና ወጪ ምክንያት የኑሮ ሄኔታቸው የሚቃስባቸውንና ለድህንነት የሚዳረጉ ቤተሰቦችን እንዲሁም ኢጋላጭ ሁኔታዎችን ለማወቅ የተዘጋጀ መጠይቅ

ውድ የቤተሰቡ አባ/እማ ዎራ በቅድሚያ እነደምነ አሉ? እኔ ስሜ ----------ይባላል፡፡ እኔ እዚህ የምገኘው የክልሉን ጤና ጥበቃ ቢሮን እና የጎንደር ዩንቨርሲቲን በመወከል ቤተሰቡዎ በከፍተኛ የህክምና ወጪ ምክንያት የኑሮ ደረጃዎ ለድህንነት የሚደርግ መሆኑንና ኢጋላጭ ሁኔታዎችን ለማወቅ ነው፡፡ ይህ ጥናት በጎንደር ዮንቨርሲቲ የምርምር ስነምግባርና ተገቢነት አጥኚ ኮሚቴ ጽድቆ በቤንሻንጉለ ጉሙዘ ክልል ጤና ቢሮ በኩል ፍቃድ አግኝቶ ለዚህ በቅቷል፡፡ መጠይቁ የተዘጋጀው በጎንደር ዩነቨርሲቲ በጤና ሳይንስ ኮሌጅ በህብረተሰብ ጤና አጠባበቅ ተቋም ስር በሄልዝ ኢኮኖሚክስ የትምህርት ዘርፍ ለድህረ ምረቃ ጽሁፍ አገልግሎት ታስቦ ነው ፡፡ ስለዚህ እርስዎ ጥያቄወቹን በመመለስ እነደሚረዱኝ ተስፋ አደርጋለሁ፡፡ በዚህም ሂደት እርስዎ የሚሰጡን ማንኛውም አይነት መረጃ በጥንቃቄና በምስጥር የሚያዝ እንዲሁም እርስዎ ስምዎት ስለማይመዘገብ በመረጃ አሰጣጡምንም አይነት ስጋት አይደርዎ፡፡ በተጨማሪ መልስዎ ለብቻ በተዘጋጀ ቅጽ ላይ ስለሚመዘገብ ማንም እንዳይደርስበት ይደረጋል፡፡ እርስዎ በዚህ ጥናት ላይ መሳተፍ በሙሉ ፍቃደኝነትዎ ላይ የተመሰረተ ነው ፡፡ ግልጽ ያለሆነ ጥያቄ ካለ ማብራሪያ የመጠየቅ መብትዎ የተጠበቀነው ፡፡ ይሁን አንጂ ለመመለስ የማይፈልጉት እና በጥናቱ ላይ ያለመሳተፍ ፍላጎት ካለዎ መብትዎ የተጠበቀነው፡፡ ነገር ግን ጥናቱ ለቤተሰብዎ እና የጤና ፖሊሲ ለሚነድፍ አካላት ትልቅ ግብዓት መሆኑን አውቀው ታማኝና ትክክለኛ ምላሽ እንዲሰጡን ከታላቅ ምስጋናና አክብሮት ጋር እጠይቃለሁ፡፡ በዚሁ መሰረት መጠይቁን ለመሙላት ፍቃደኛ ነዎት

አዎ----------1

አይደለሁም----------2

ፍቃደንነቱን ያረጋገጠው መረጃ ሰብሳቢ ፊርማ ቀን----------/----------/----------

Annex IV Amaharic version questionnaire

ክፍል 1

<u>ማህበራዊ ኢኮኖሚያዊና ስነ ህዝባዊ ባህሪያትን በተመለከተ</u>

ተ/ቁጥር	መጠይቅ	አማራጭ አጸፋዎች
1	የቤተሰቡ ሃላፊ ጾታ	ሀ) ወንድ ለ) ሴት
2	የቤተሰብ ሃላፊ የትዳር ሁኔታ	ሀ) ያላገባ/ች ለ) ያገባ/ያገባች ሐ) አግብቶ የፈታ/ች መ) ባል/ሚስት የሞተባት /የሞተበት
3	የአበ/እማዎራው ብሄረሰብ	ሀ) አማራ ለ) ጉሙዝ ሐ አገው መ) ሺናሻ ሠ) ሌላ ካለ ይጠቀስ
4	የቤተሰቡ ሃላፊ አባ/እማዎራ ሀይማኖት	ሀ) ኦርቶዶክስ ለ) ሙስሊም ሐ ፕሮቴስታንት መ) ሃይማኖት የለሽ ሠ) ሌላ ካለ ይጠቀስ
5	የእናትየዋ የት/ት ደረጃ	ሀ) ማንበብና መጻፍ የማትችል ለ) ማንበብና መጻፍ ብቻ የሚትችል ሐ) 1ኛ ደረጃ ት/ት ያጠናቀቀች መ) 2ኛ ደረጃ ት/ት ያጠናቀቀች ሠ) ዲፕሎማና ከዛ በላይ ረ) ሌላ ካለ ይጠቀስ
6	የቤተሰብ አባላት ብዛት	…….
7	በቤተሰቡ ያሉ ከ5 ዓመት በታች ህጻናት ስንት ናቸው	……..
8	በቤተሰቡ ለስራ የደረሱ አባላት ስንት ናቸው	
9	ከ65 ዓመት በላይ የእድሜ ባለጸጋ በቤተሰቡ ስንት ነው	……..
10	የቤተሰቡ አባ/እማዎራ እድሜ ስንት ነው	…….
11	የቤተሰቡ አባ/እማ ዎራ መተዳደሪያ	ሀ) ግብርና ለ) አነስተኛ ነጋዴ ሐ የቤት እመቤት መ) የቀን ሰራተኛ ሠ) የእደ ጥበብ ሰረተኛ ረ) ሌላ ካለ ይጠቀስ
12	በቤተሰቡ ያሉ አቅመ ደካማ አባላት እነ ማን ናቸው	ሀ) ህጻናትና አዛውንቶች ለ) አዛውንት ብቻ ሐ ከ5ዓመት ብቻ ህጻናት መ) ምንም አቅመ ደካማ የለም

		ሠ) ሌላ ካለ ይጠቀስ
13	የቤተሰቡ አባ/እማዎራ የቅጥር ሁኔታ ምን ይመስላል	ሀ) ለራሱ የሚሰራ ለ) የመንግስት ሰራተኛ ሐ ስራ ፈላጊ መ) ሌላ ካለ ይጠቀስ
14	ቤተሰቡ የጤና እንክብካቤ ለማግኘት ያላቸው ዝንባሌ እንዴት ያያሉ	ሀ) ከፍተኛ ለ) መካከለኛ ሐ) ዝቅተኛ መ) ሌላ ካለ ይጠቀስ
15	በቤተሰቡ አካላዊ እና ሰነልቦናዊ ጉዳት ለበት አባል አለ	ሀ) አለ ለ) የለም
16	ከተራ ቁትር 15 መልስዎ አዎ ከሆነ ምን አይነት ጉድለት ነው	ሀ) አካላዊ ለ አይምሮዊ ጉዳት ሐ) ማንኘውንም ተግባር መፈጸም የማይ ችል መ) ሁሉም የለም

ክፍል ሁለት

የምግብ ወጪዎችን በተመለከተ

1) እባክዎን ለሚከተሉት የምግብ አማራጮች የትናንትና ተገቢውን የፍጆታ ዋጋ ይዘርዝሩ?

ተ/ቁጥር	የምግብ አይነቶች	የእለት ፍጆታ	የአንድ ወር ወጪ
1	የስጋ/አሳ ፍጆታ በገንዘብ		
2	ቤተሰቡ ለቦርዲ የተጠቀመው እህል በገንዘብ		
3	ቤተሰቡ ለገንፎ የተጠቀመው እህል በገንዘብ		
4	የበርበሬ ፍጆታ በገንዘብ		
5	የዎጥ ፍጆታ በገንዘብ		
6	የእንጀራ ፍጆታ በገንዘብ		
7	ሌሎች		
8			
9			
ድምር			

2) ከተራ ቁጥር 1 ለምግብ ፍጆታ በትናንትናው ዕለት የወጣ ጠቅላላ ወጪ ባለፉት አንድ ወር ውስጥ ባሉ ቀናት ጋር ሲነጻጸር

ሀ) ተመሳሳይ ነው ለ) ይበልጣል ሐ) ያንሳል

3) ከተራ ቁጥር 2 ያለው የተለያየ ከሆነ በቀን በአማካይ ቤተሰቡ ለምግብ የሚወጣው ወጪ ምን ያክል ነው?----------

4) ባለፈው ወር ከምግብ ወጪዎች በተጨማሪ ቤተሰቡ ያወጣቸው ሌሎች ወጪዎች ካሉ የትኞቹ ናቸው?

ሀ) ለእቃዎች (ከ አንድ ሺህ ብር በላይ) ለ) ለህክምና ወጪ

ሐ) ለትምህርት ወጪ መ) ለሰርግ

ሠ) ለተስካር ረ) ሌላ ካለ ይጠቀስ

5) ቤተሰቡ በአሁኑ ሰዓት የተበደረው ገንዘብ አለ ?

ሀ) አለ ለ) የለም

6) ከተራ ቁጥር 5 ያለው አዎ ከሆነ ምን ያክል ነው ?----------,

7) ከተራ ቁጥር 5 ያለው አዎ ከሆነ በምን ምክንያት ነው ?

ሀ) ለሸቀጣሸቀጥ ግዢዎች ለ) ለህክምና ሐ) ለምግብ ፍጆታ

መ) ለሰርግ ሠ) ለተስካር ረ) ለትምህርት

ሰ) ለቀን ፍጆታ ሸ) ሌላ ካለ ይጠቀስ

8) ቤትዎ ቅርብ ከሆነው ጤና ተቋም ያለው ርቀት በኪሎ ሜትር ምን ያክል ነው ----------?

ክፍል 3

የጤና አገ/ት አጠቃቀምና የህክምና ወጪ መጠይቆች

9) በቤተሰቡ ስር የሰደደ(chronic illness) በሽታ ያለበት አባል አለ

ሀ) አለ ለ) የለም

10)ከቁጥር 9 መልስዎ አዎ ከሆነ ስንት ሰው አለ----------

11)ባለፉት 12 ወራት ውስጥ በቤተሰቡ ውስጥ የታመመ ወይም ጉዳት የደረሰበት እና የህክምና እርዳታ የተደረገላቸው ሰዎች ምን ያክል ናቸው?----------

12)ባለፉት አራት ሳምንታት ቤተሰቡ ውስጥ በማንኛውም በሽታ ወይም አደጋ ጉዳት የደረሰበት አለ?

ሀ) አዎ ለ) የለም

13)አዎ ከሆነ እባክዎ ድግግሞሽ መጠኑን በታማሚዎች ብዛት ልክ ይንገሩን ?

		No 1	N02	No3	No4	No5	No6
14	የበሽታ ምልክትና መለያ ባህሪያት						
	ሳል						
	ትኩሳት						
	የራስ ምታት ማጥወልወልና ራስ ማዞር						
	የሆድ ህመም						
	የአጥንትና የመገጣጠሚያ አካላት ህመም						
	ድንገተኛ አደጋ						
	የደም ግፊት						
	የልብ ህመም						
	የኩላሊት ህመም						
	ሌሎች ካሉ ይጠቀሱ						
15	በቤተሰቡ በማንኛውም በሽታ የታመመ ህክምና አግኝተዋል						
	አዎ						
	አላገኘም						
16	አዎ ከሆነ የት ቦታ ነው						

	በራሱ						
	በባህላዊ ህክምና						
	ከግል ክሊኒክ						
	ጤና ኬላ						
	የመጀመሪያ ደረጃ ሆስፒታል						
	ጠቅላለ ሆስፒታል						
	ሌላ ካለ ይጠቀስ						

17) ቤተሰቡ የጤና መድህን አለዎት?

ሀ) አዎ ለ) አይደለም

መጠይቆች እና አማራጭ አካሎቻቸው	የቤተሰቡ አባላት ብዛት				
	1	2	3	4	5
18) ባለፉት አንድ ወር ውስጥ የታመመ ወይም ጉዳት የደረሰበት የበተሰብ ባል አለ? ሀ) አለ ለ) የለም ካለ ወደ ተራ ቁትር 19 ይሀዱ የታማሚዎች ቁጥር ከሁለት በላይ ከሆነ በሚቀጥለው ኮሎመን ይሙሉ					
19) የህመሙ ወይም የጉዳቱ አይነት ምን ነበር					
l) ሳል					
m) ትኩሳት					
n) የራስ ምታት					
o) የመተንፈስ ችግር					
p) የሆድ ህመም					
q) የአጥንትና የመገጣጠሚያ ህመም					
r) ድንገተኛ አደጋ					
s) የደም ግፊት					
t) የልብ ህመም					
u) ሌላም ካለ ይጠቀስ					
20) ህመሙ ምን ያክል ቀን ቆይቷል d) እስከ አሁን የአልጋ ቁራኛ የሆነበት የቀን ብዛት..... e) ስራና ት/ት የቀረበት የቀን ብዛት..... f) ስራ መስራት የሚችልበት የቀን ብዛት..... ጠቅላላ የቀን ብዛት =a+b+c=.....					
21) ታማሚው የህክምና አገልግሎት አግኝቶ ነበር c) አዎ b) አላገኘም					
22) መልስዎ አዎ ከሆነ ህመሙ ከጀመረበት ቀን ጀምሮ ለምን ያክል ቀናት ህክምናና ምክር አግኝቷል? የቀን ብዛት=.....					

23) እስኪሻልዎት ድረስ በቅደም ተከተል ምን አይነት ጤና ተቋም ሀደዋል

ሀ) የግል ክሊኒክ ለ) የግል መድሃኒት ቤት ሐ) ጤና ኬላ

መ) ጤና ጣቢ ሠ) ጠቅላለ ሆስፒታል ረ) ሪፈራል ሆስፒታል

ሰ) የባህል መድሃኒት አዋቂዎች ሸ) በራስ ህክምና

24) ከተራ ቁጥር 21 ለመጀመሪ ጊዜ የህዱበትን የህክምና ማእከል ለምን መረጡ?

ሀ) ቅርብ ስለሆነ **ለ)** ጥራት ስላለው **ሐ)** ርካሽ ስለሆነ

መ) በተውውቅ ሠ) የከፉ ህመም ስለነበረ ሸ) ሌላም ካለ ይትቀሱ

25) ታማሚው ምን ያክል ቀን ሆስፒታል ቆይቷል

ሀ) 1-3 ቀናት ለ) 4-7 ቀናት **ሐ)** 8-12 ቀናት

መ) 13-17 ቀናት ሠ) ከ18 ቀናት በላይ

26) ባጋጠመዎ ህመም ምክንያት ያገኙት የህክምና አገልግሎት ምን ነበር ?

ሀ) ተኝቶ መታከም ለ) ተመላላሽ ህክምና

ሀ ከሆነ ወደ 30 ይቀጥሉ ለ ከሆነ ወደ 31 ይቀጥሉ

25. ተኝቶ የታከሙ ከሆነ ምን ያክል ወጪ አወጡ (በብር)

ሀ) ለምክርና አገ/ት----------ብር ለ) ለመድሃኒት----------ብር

ሐ) ለራጅና ለላብራቶሪ ምርመራ------ብር መ) ለአልጋ ……ብር

ሠ) ለትራንስፖርት-------ብር

ረ) ሌላም ካለ ይጠቀስ……..

ጠቅላላ ወጪ……ብር

26. . ውሎ ገብ ህክምና ከሆነ ምን ያክል ውጪ አወጡ (በብር)

ሀ) ለምክርና አገ/ት----------ብር ለ) ለመድሃኒት-----ብር

ሐ) ለራጅና ለላብራቶሪ ምርመራ ……ብር መ) ለአልጋ……ብር

ሠ) ለትራንስፖርተ-----ብር

ረ) ለታማሚው እንክብካቤ……ብር

ሰ) በነጻ የተሰጠ ህክምና……ብር ሸ) ሌላም ካለ ይጠቀስ----------

ጠቅላላ የወጣ ወጪ=……..

27) ለሚከተሉት ተቋማት ምን ያክል ወጪ አወጡ

a) ለግል ክሊኒክ----------ብር b) ለገጠር መድሃኒት ቤት----------ብር

c) ለጤና ኬላ----------ብር d) ለጤና ጣቢያ----------ብር

f) ለጠቅላላ ሆሰፒታል ------ብር g) ለባህል መድሃኒት አዋቂዎች ----ብር

h)ግል ህክምና ----------ብር

ጠቅላላ ወጪ = 26+25=……..

28) ታማሚው ምን አይነት የነጻ ህክምና ማሰረጃ አለው

a) የጤና መድህን b) የነጻ ህክምና (exempted)

c) የደሀ ደሀ መታወቂያ d) ምንም የለውም

29) ቤተሰቡ በወር ውስጥ ለሚከተሉት አገልግሎቶች ምን ያክል ወጪ አወጡ

ሀ) ለጠቅላላ የጤና ህክምና ---------ብር ለ) ለቤተሰብ ምጣኔ----------ብር

ሐ)ለቅድመ ወሊድ ክትትል----------ብር መ) በድምሩ---------ብር

30) ቤተሰብዎ የነጻ ታካሚ አባል ከሆኑ ምን ያክል የሚሆን ወጪ ታድገዋል(እንዳይከፍሉ ተደርጓል) በብር----------

31) ቤተሰቡ በወር ውስጥ በቀጥታ ባጠቃላይ ለህክምና ያወጣው ወጪ በብር ምን ክል ይሆናል

1) ለእያንዳንዱ የቤተሰብ አባል= 25+26+29=…… birr

2) ለመላው ቤተሰብ በጅምላ =----------birr

32) ቤተሰቡ በወር ውስጥ ባጠቃላይ የነጻ ህክምናን ጨምሮ ለህክምና ያወጣው ወጪ በብር ምን ያክል ይሆናል

1) : ለእያንዳንዱ የቤተሰብ አባል= 30 +31=---------ብር

2) ለመላው ቤተሰብ በጅምላ----------ብር

33) ከተራቁጥር 1 ለምግብ ፍጆታዎ በትናንትናው እለት ቤተሰቡ ያወጣው ጠቅላላ ውጪ በብር----------

34) ባለፈው ወር ከምግብ ወጪዎች በተጨማሪ ቤተሰቡ ያዎጣቸው ሌሎች ወጪዎች?

ሀ) ለእቃዎች (ከ አንድ ሺህ ብር በላይ)=----------ብር ለ) ለህክምና ወጪ----------ብር

ሐ) ለትምህርት ወጪ---------ብር መ) ለሰርግ---------ብር

ሠ ለተስካር--------- ረ)ለልብስ----------ብር

ሰ) ሌላ ካለ ይጠቀስ

በጠቅላላ----------ብር

35) የቤተሰቡ ጠቅላላ የአንድ ወር ወጪ በገንዘብ = (ጥያቄ ቁጥር 33*30)+ ጥያቄ 34,----------ብር

ክፍል 4 የምጣኔ ሀብት ሁኔታን በተመለከት

የገቢና የሃብት ኢንዴክስ			
15.	እባክዎ በሚከተሉት ዝርዝር ንበረቶች ላይ ትክክለኛውን መረጃ ይሰጡን	የሚከተሉትን እንስሳቶቸ ቤተሰቡ አለው ? 1= አለ 2=የለም	በአሁኑ ሰዓት ምን ያክሉ በእጅዎ አለ
	የእርሻ በሬ		
	የደለበ በሬ		
400	ላምና ጊደር		

	ወይፈን			
	በግ			
	ፊየል			
	ጥጃ			
	አህያ			
	ዶሮ			
	በቅሎ			
	የንብ ቀፎ			
	ሌላ ካለ			
401	በበተሰብዎ በ2008/9 ዓም ያመረታቸው ምረቶች ዝርዘር	1=አዎ 2=አይደለም		አዎ ከሆነ ምን ያክል ኩንታል ነው
	ጠፍ			
	በቆሎ			
	ቦቤ			
	አኩሪ አተር			
	ዳጉሳ			
	ዱባ			
	ኤጶ			
	ማንጎ			
	ብርቱካን			
	በርበሬ			
	ሽንኩራ አገዳ			
	ጫት			
	ሌሎች ካሉ ይጠቀሱ			
402	ቤተሰቡ የሚከተሉት ቁሳቁሶች አሉት?			ካለ ምን ያክል
	1) የሚሰራ ራዲዮ	1. አዎ	2. የለም	
	2) ዘመናዊ አልጋ	1. አዎ	2. የለም	
	3) የጥጥ ወይም የስፖንጅ ፍራሽ?	1. አዎ	2. የለም	
	4) ሞባይል	1. አዎ	2. የለም	
	5) የውሃ መርጫ	1. አዎ	2. የለም	

	6)ዘመናዊ ምድጃ	1. አዎ	2. የለም	
	7)ሌላ ካለ ይጨምሩ			
403	ቤተሰብዎ ምን አየነት መጸዳጃ ቤት አለው?	1.የለም 3. ክዳን ያለውና ሽታ አልባ	2. ባህላዊ 4. ሌላ ካለ ይጠቀስ	
404	የቤትዎ ጣሪያ ምንድነ ነው	1. ቆርቆሮ 3. ሌላ ካለ ይጨመር)_____	2. ሳር	
405	ቤትዎ ስንት ክፍሎች አሉት	የክፍሉ ብዛት ----------		መንታ ክፍል-------
406	ኩሽና ቤት አለዎት	1. አለ	2. የለም	
407	ለእንስሳት የተለየ ማደሪያ አለ ሀ) ለበግ ለ) ፊየል ሐ) ለከብት	1. አዎ 1. አለ ነ. አለ	2. የለም 2. የለም 2. የለም	
408	የቤትዎ ግርግድ ከምን የተሰራ ነው?	1. እንጨት ሆኖ ያልተመረገ 2.እንጨት ሆኖ የተመረገ 3.ከዘነዘና የተሰራ 4. ሌላ ካለ ይጨመር_____		
409	የእርሻ ማሳዎ ምን ያክል ነው?	በሄክታር ----------		
410	በባንክ ወይም በሌላ ማእከል ያለ ተቀማጭ የቁጠባ ገንዘብ	በብር ምን ያክል ይሆናል----------		
411	የቤትዎ ወለል ምን ይመስላል	1) አፈር ሆኖ የተጠረገ 2) አፈር ሆኖ አመድ ያጨማለቀ 3. ሌላ ካለ ይጠቀስ		
412	የሚጠቀሙት መብራት ምንድን ነው	1) ኩራዝ 3) ሶላር 4) ሌላ ካለ ይጨመር	2) እንጨት 3)ኤልክትሪክ	
413	የሚጠቀሙት የውሃ ምንጭ	ሀ) የምንጭ ሐ) የወንዝ ሌላ ካለ ይጠቀስ	ለ) የእጅ ፓምፕ መ) የጉድጓድ	